

Figure 1

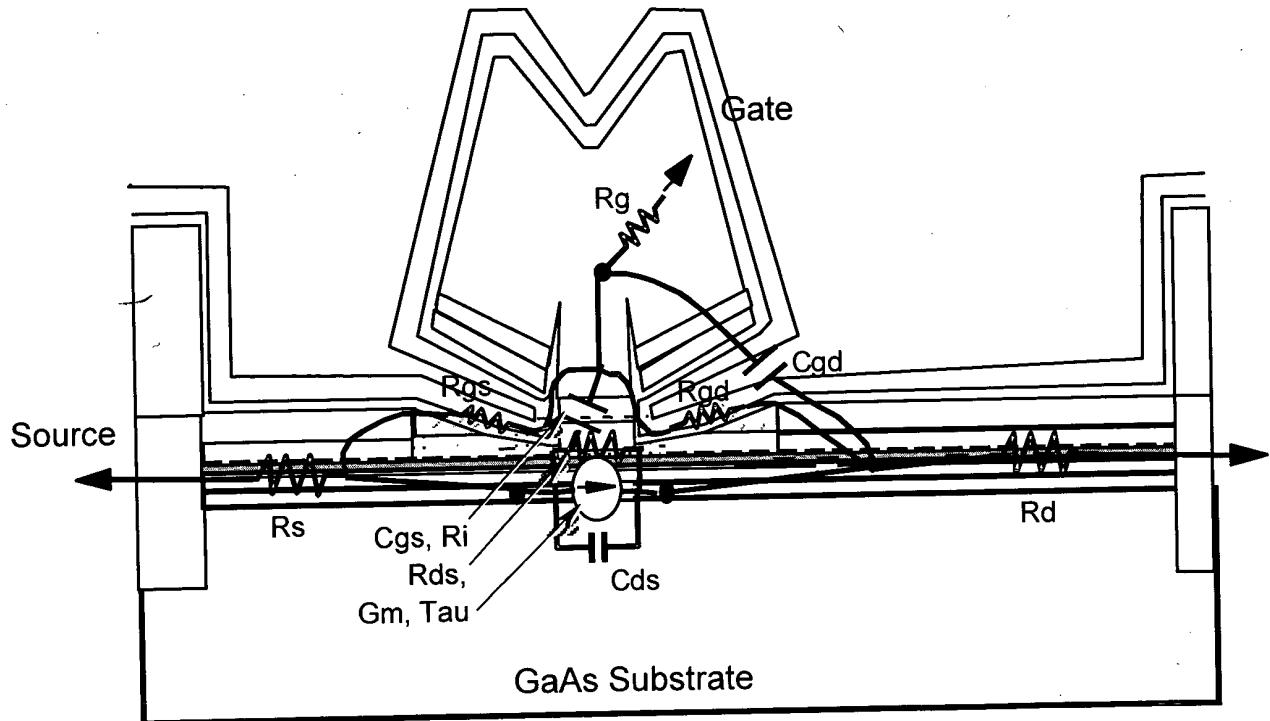


Figure 2

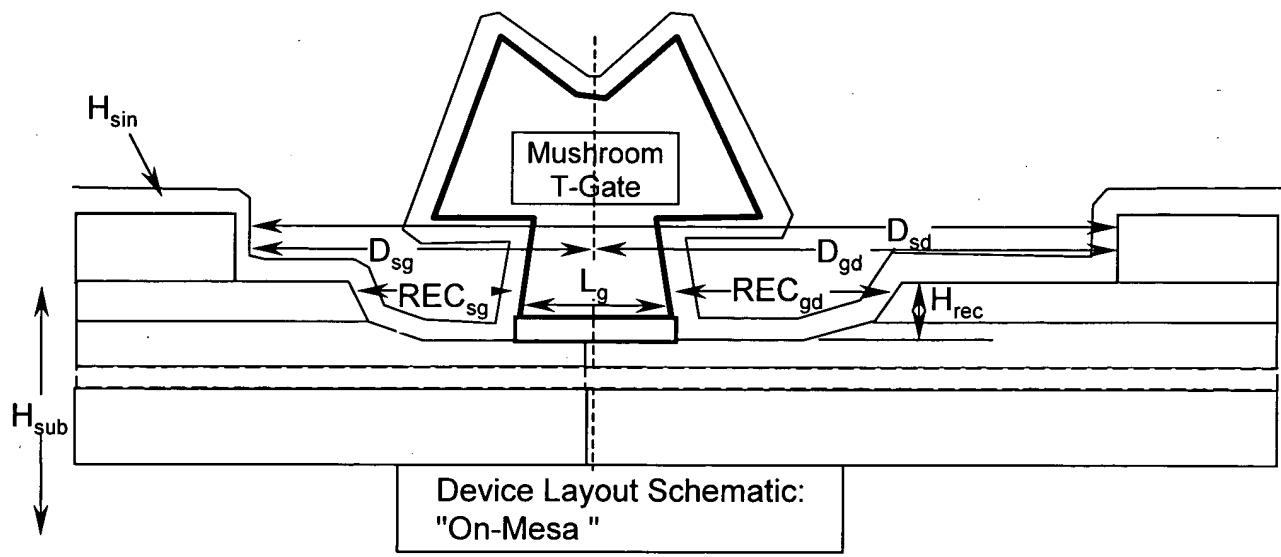


Figure 3

DISCRETE FIELD EMISSION

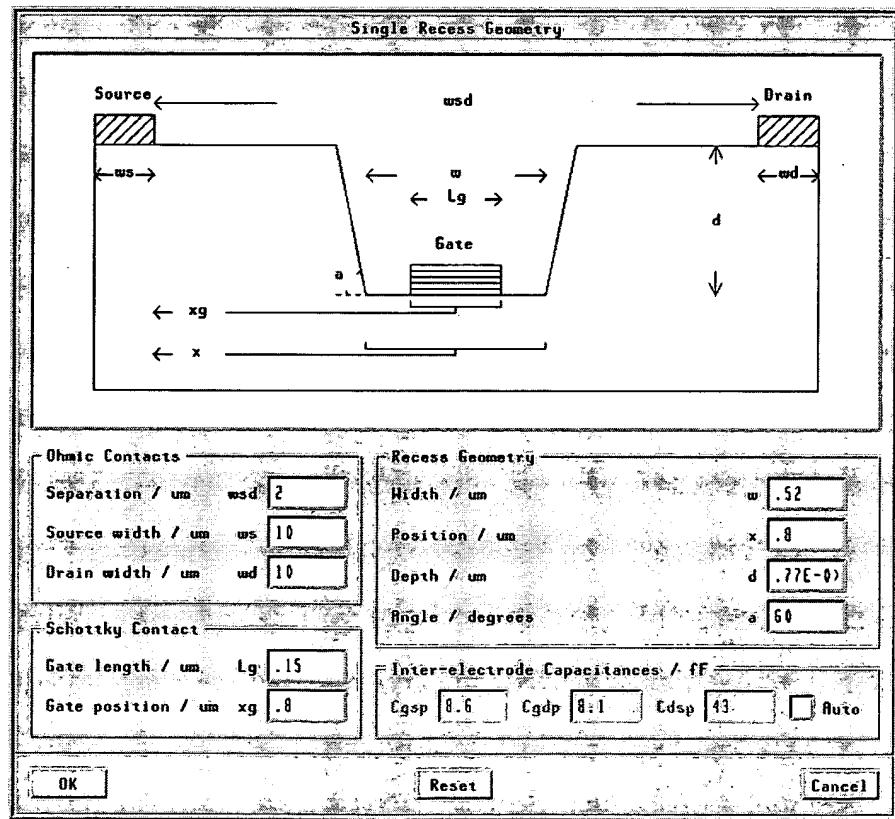


Figure 4

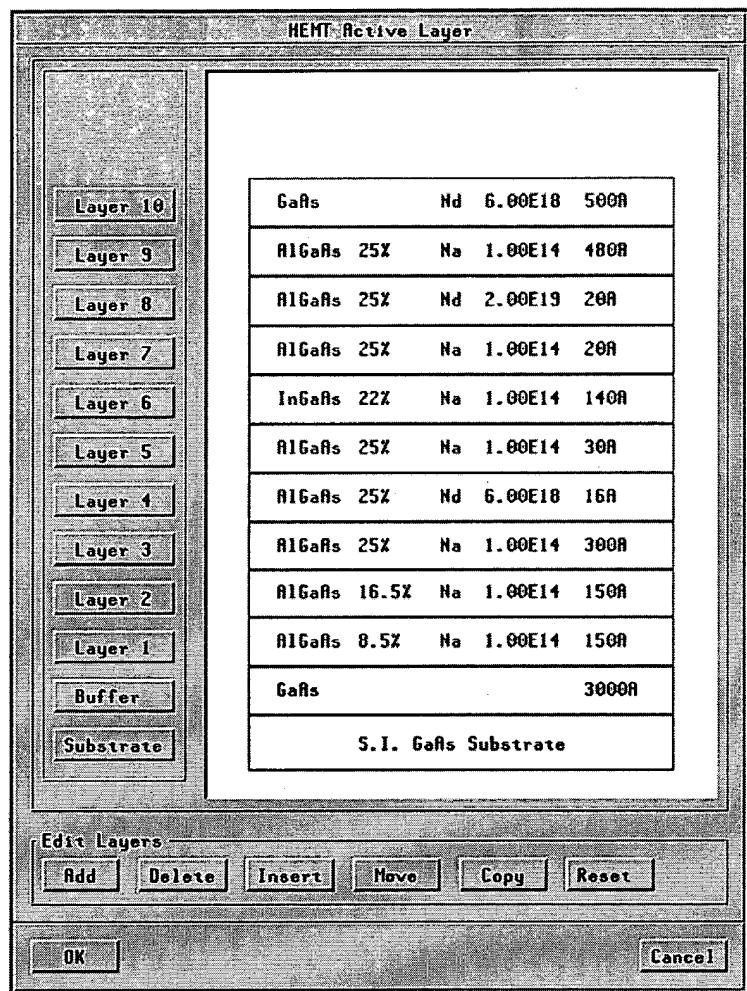


Figure 5

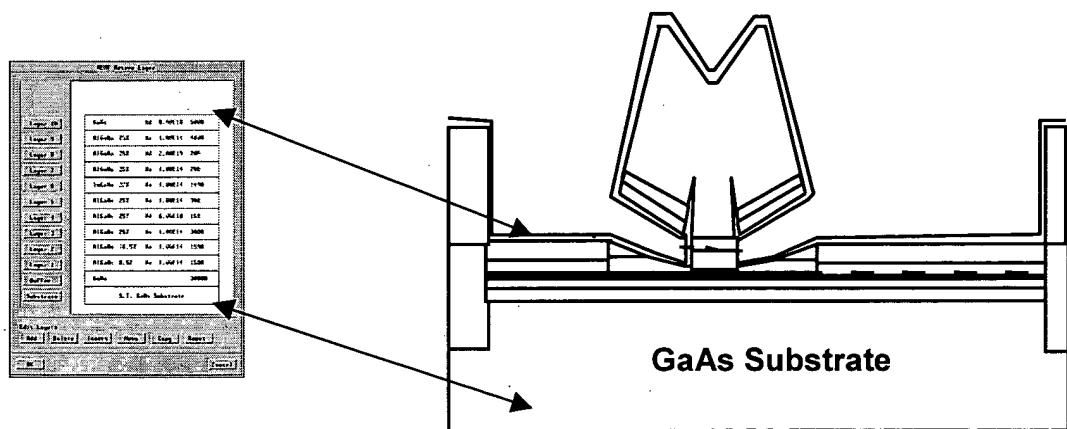


Figure 6

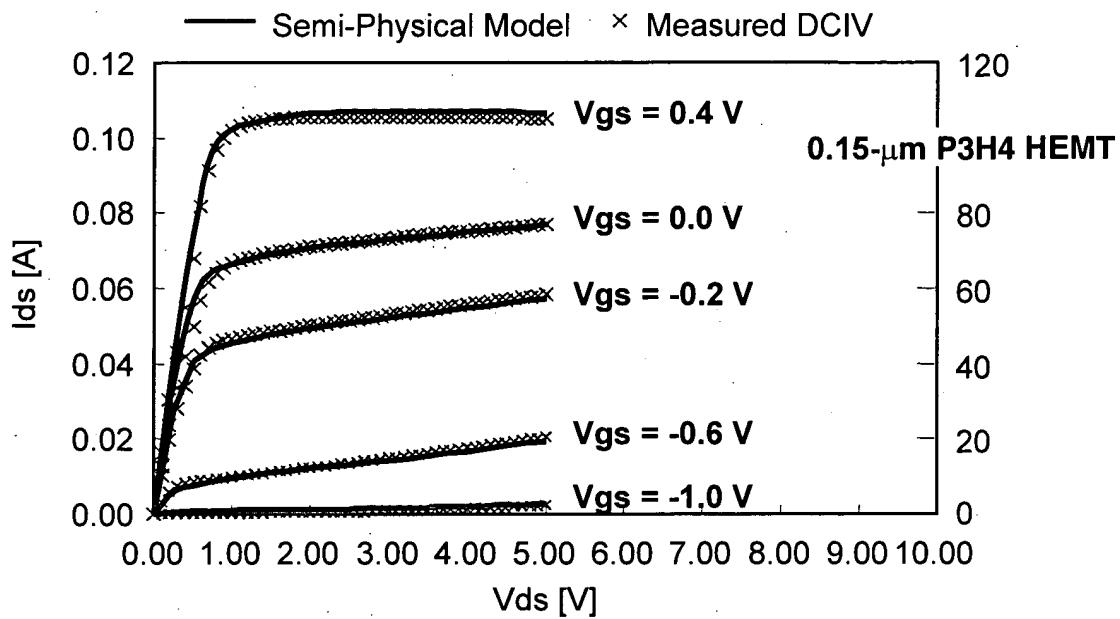


Figure 7

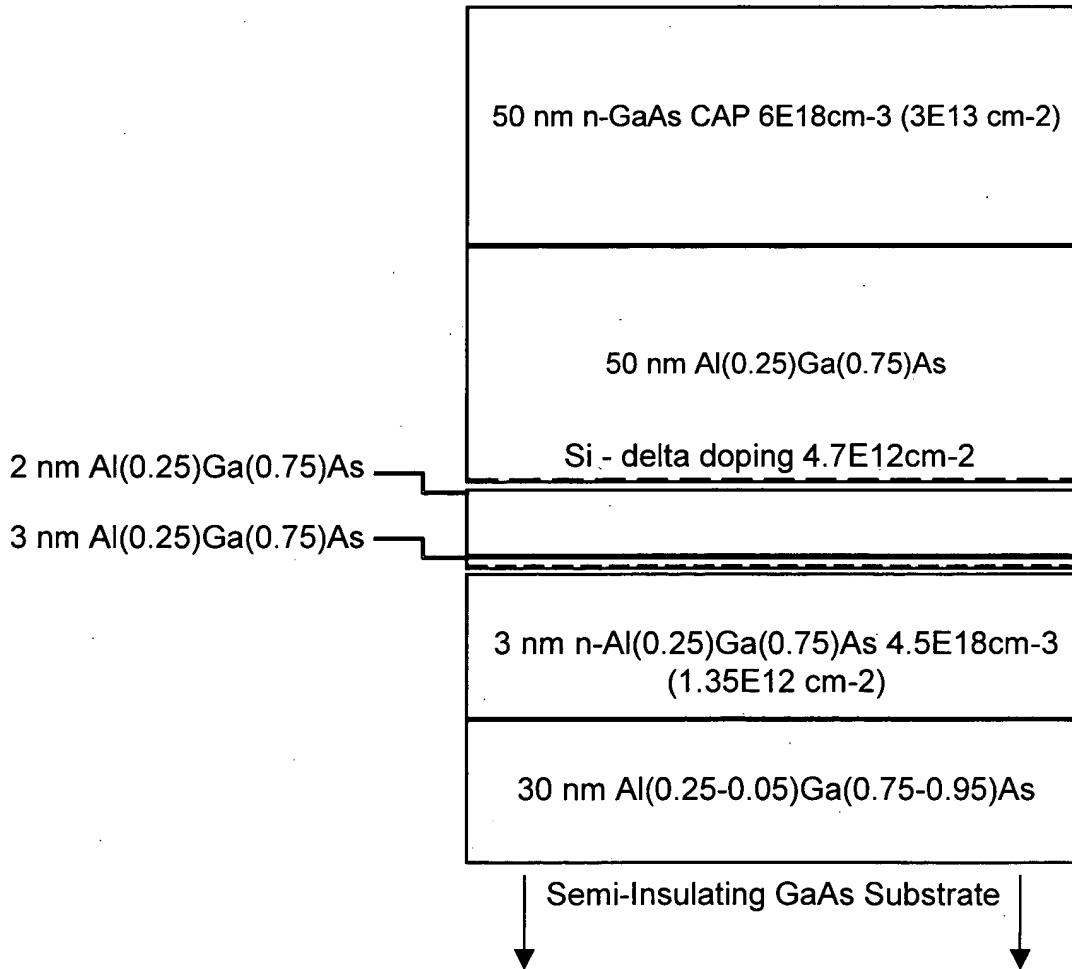


Figure 8

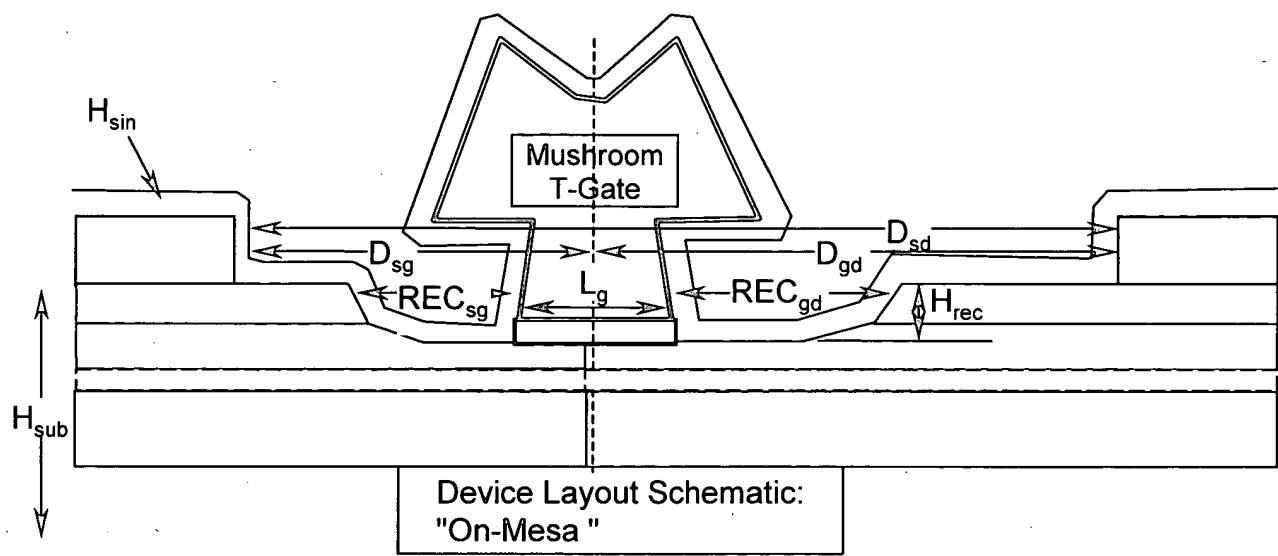


Figure 9

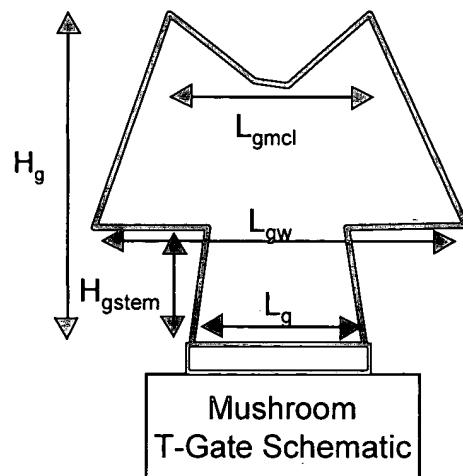


Figure 10

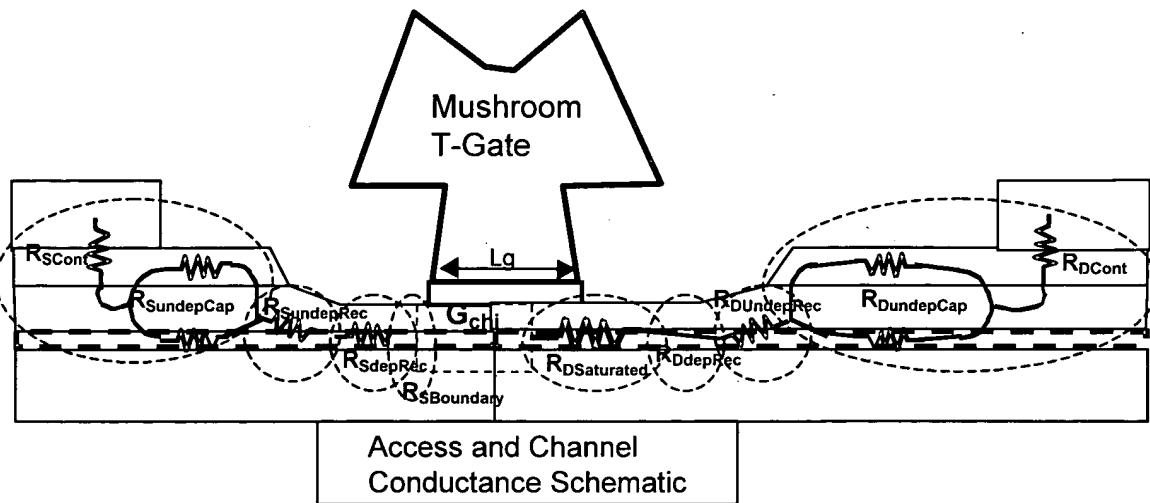


Figure 11

092012-092024

□ measure
SMAT1
meas_4200AB_2vidpk-GTPA4
S[1,1]

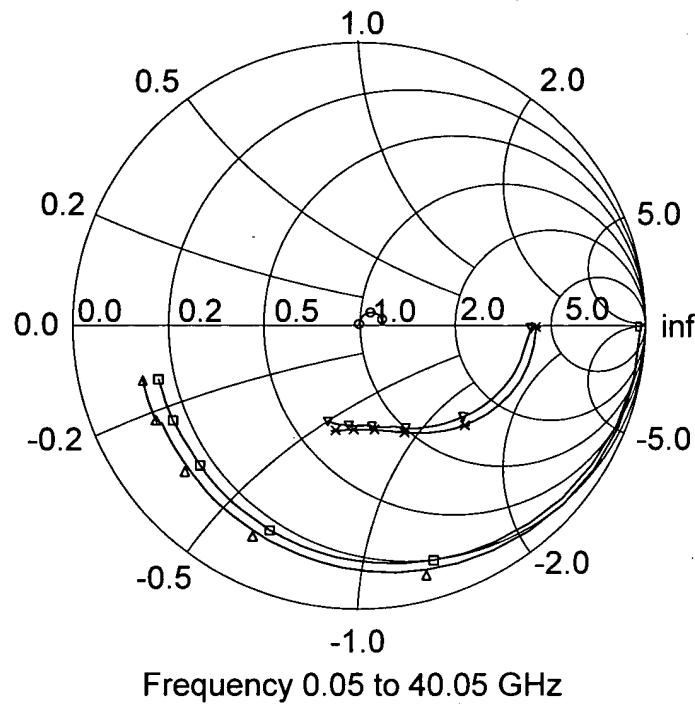
○ measure
SMAT1
meas_4200AB_2vidpk-GTPA4
S[1,2]

▽ measure
SMAT1
meas_4200AB_2vidpk-GTPA4
S[2,2]

△ Simulated
SMAT1
cp100-semiphys
S[1,1]

◊ Simulated
SMAT1
cp100-semiphys
S[1,2]

✗ Simulated
SMAT1
cp100-semiphys
S[2,2]



Measured vs Modeled S-parameters
Simulated Equivalent Circuit Element Values
via Semi-Physical HEMT Model

Figure 12

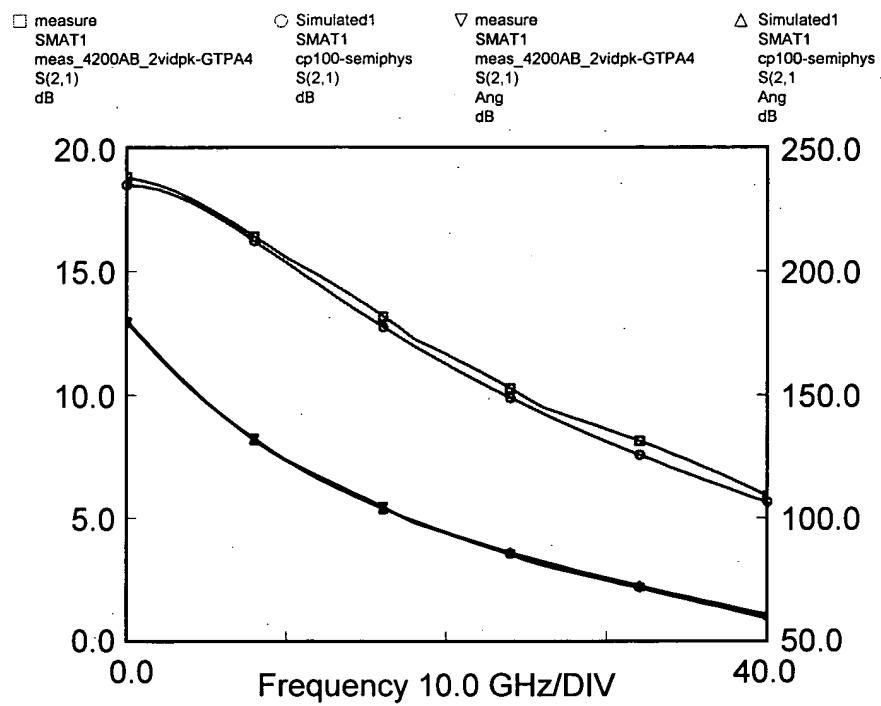


Figure 13

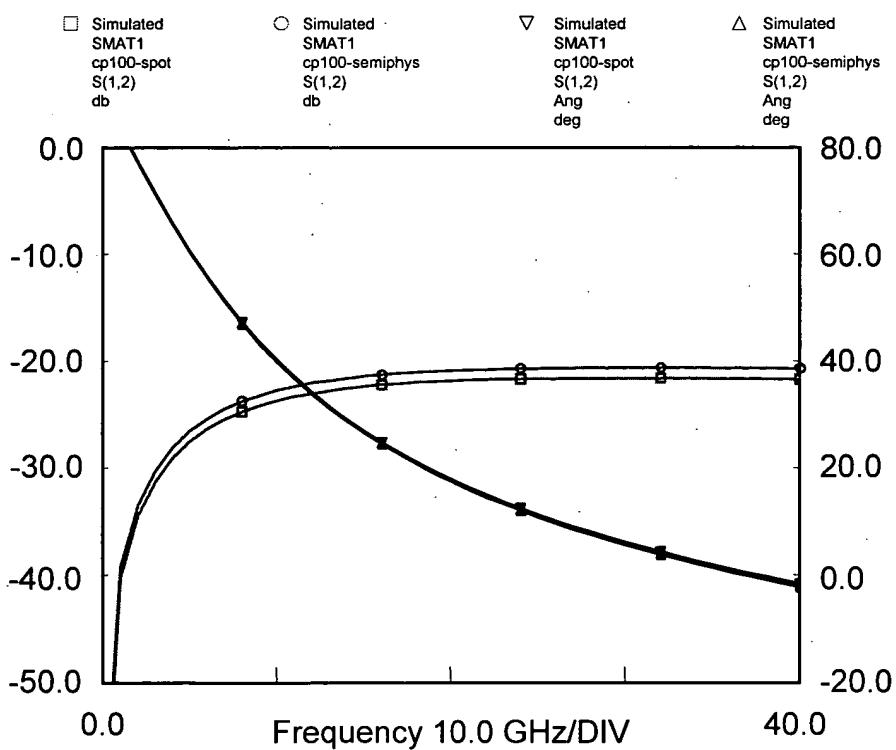


Figure 14

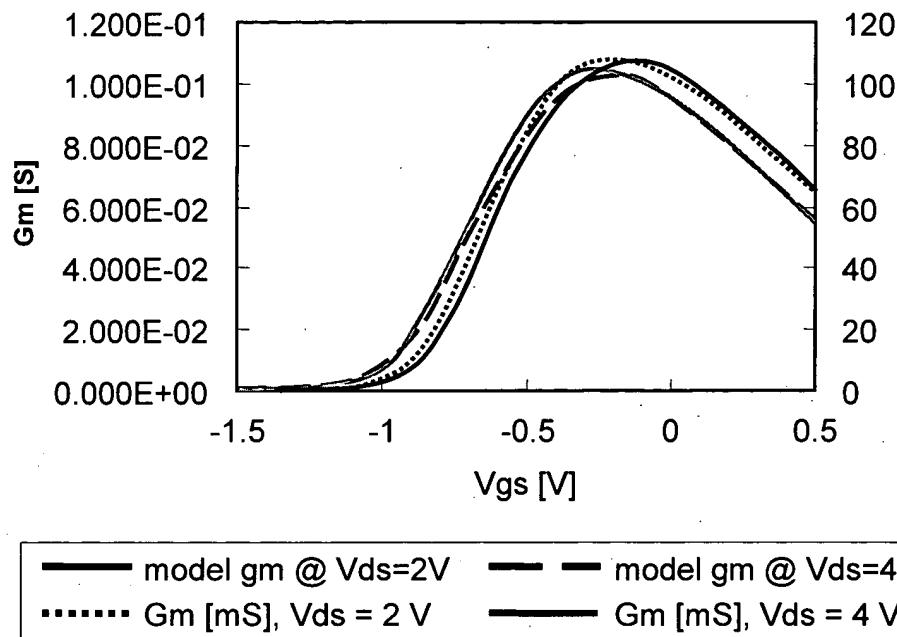


Figure 15

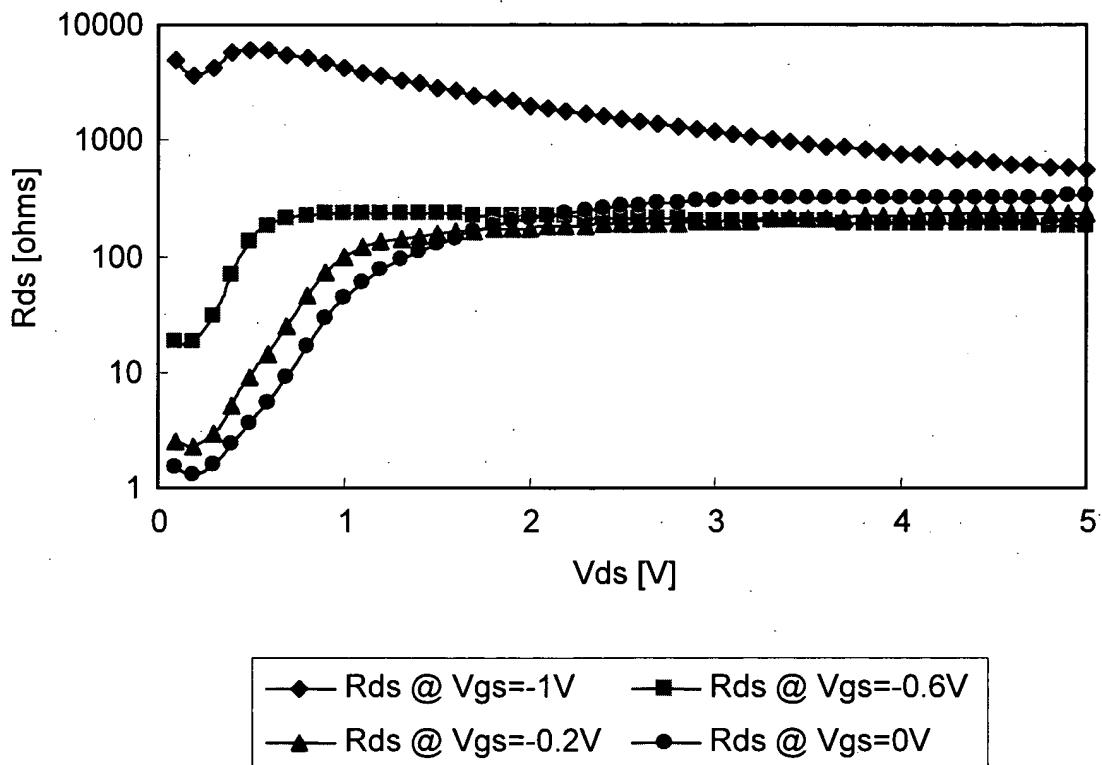


Figure 16

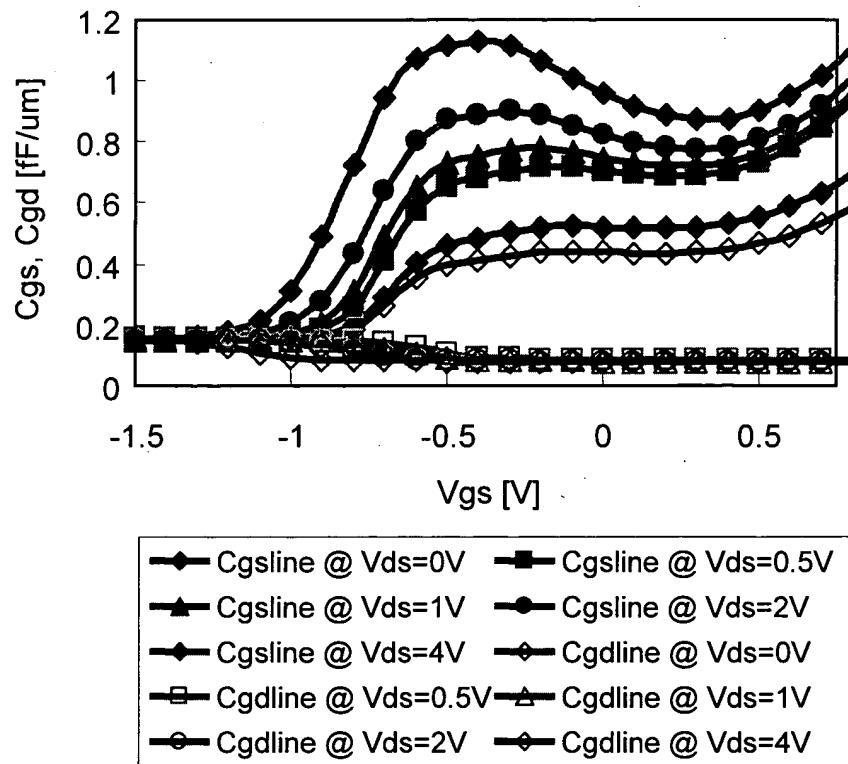


Figure 17

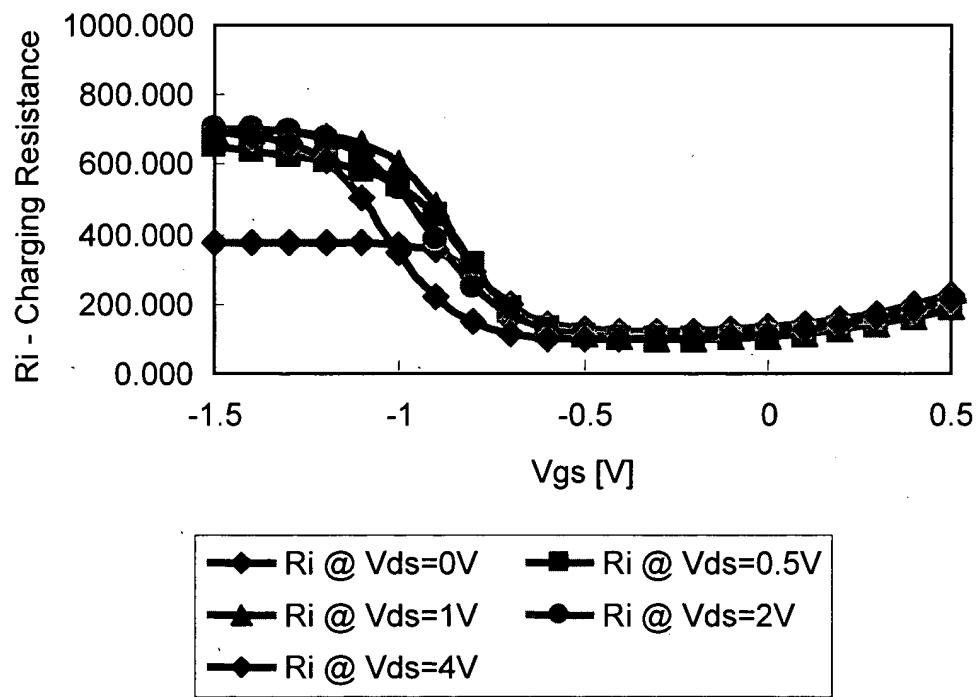


Figure 18

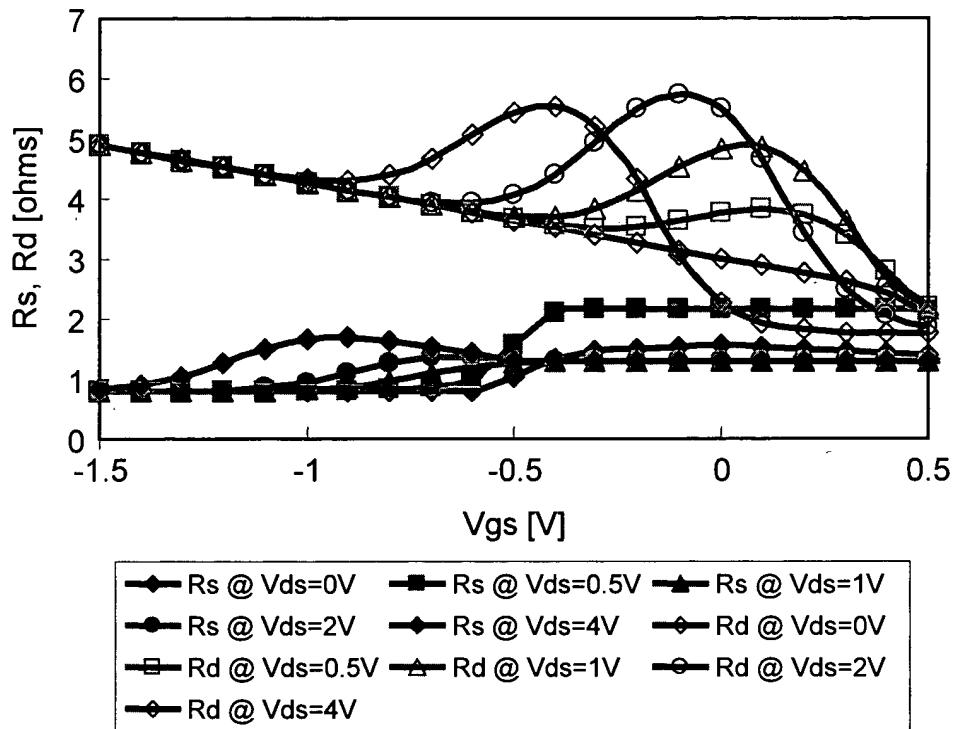


Figure 19

Measured vs Simulated Bias- Dependent Gain @ 23.5 GHz

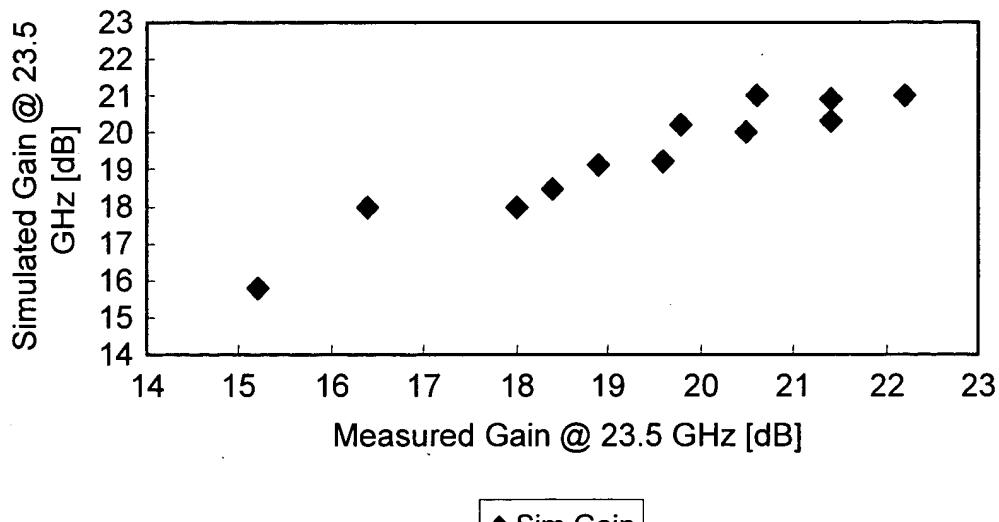


Figure 20

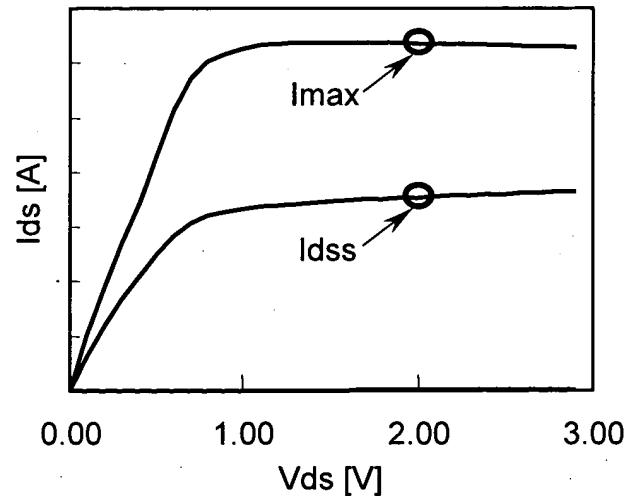


Figure 21A

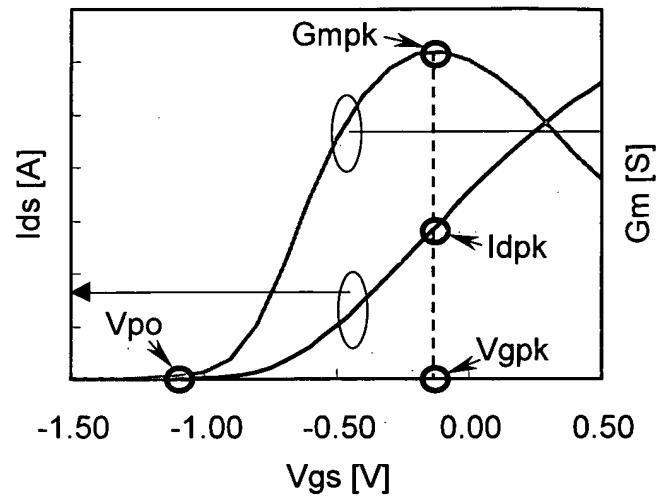


Figure 21B

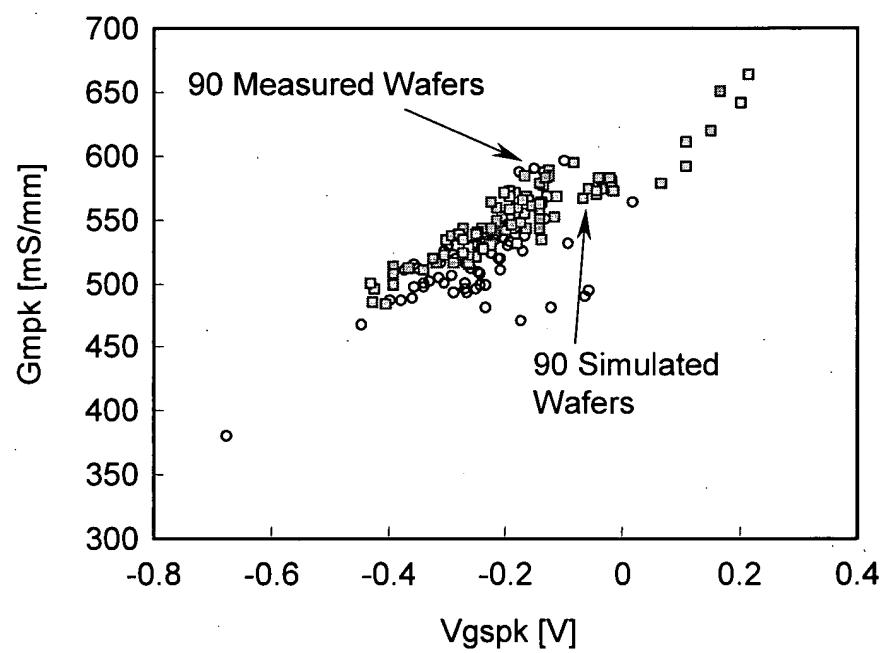


Figure 22

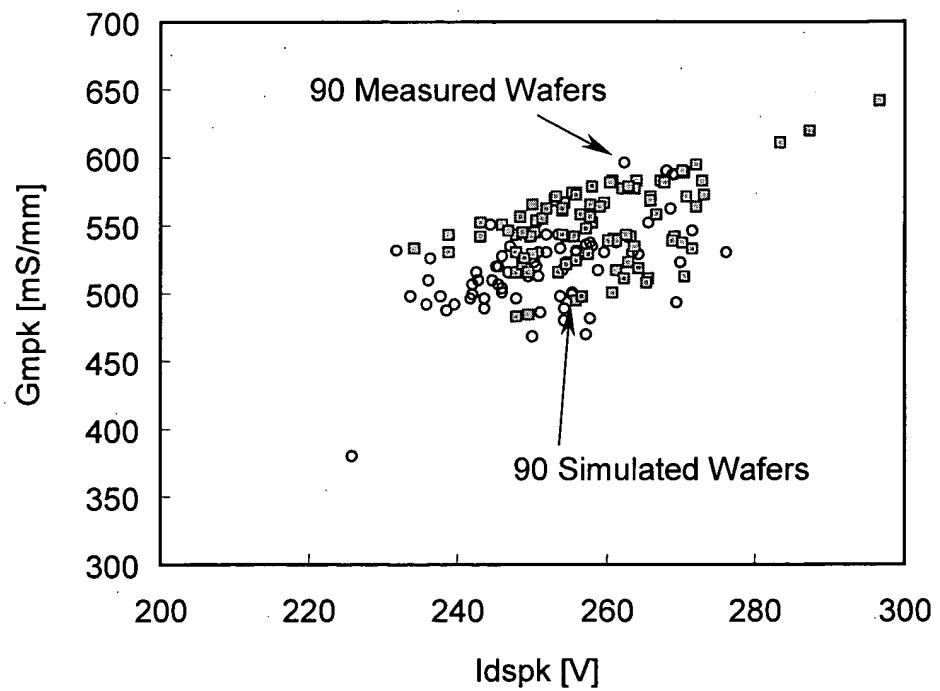


Figure 23

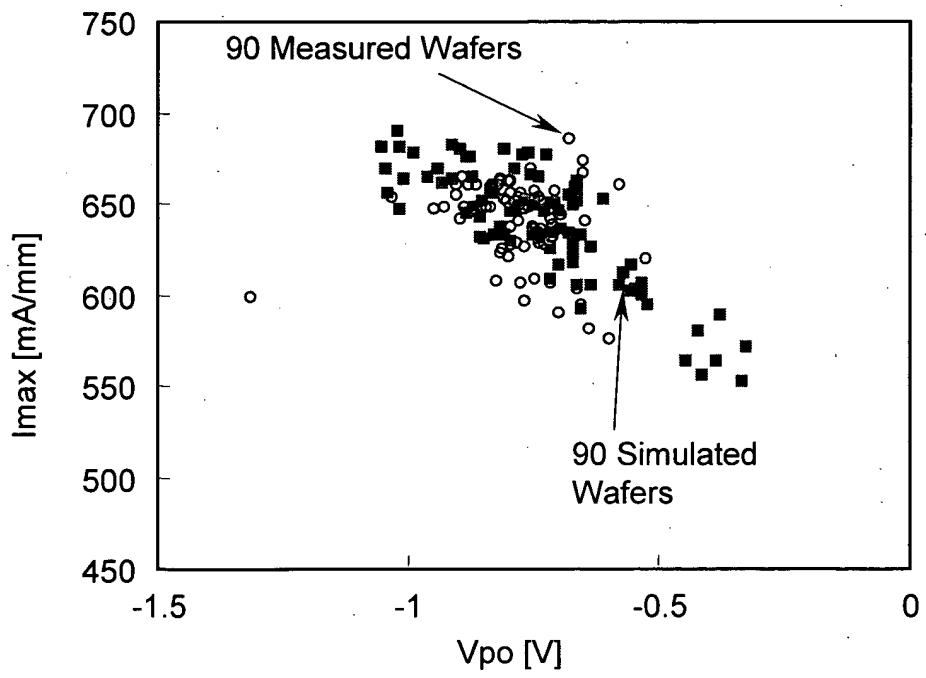


Figure 24

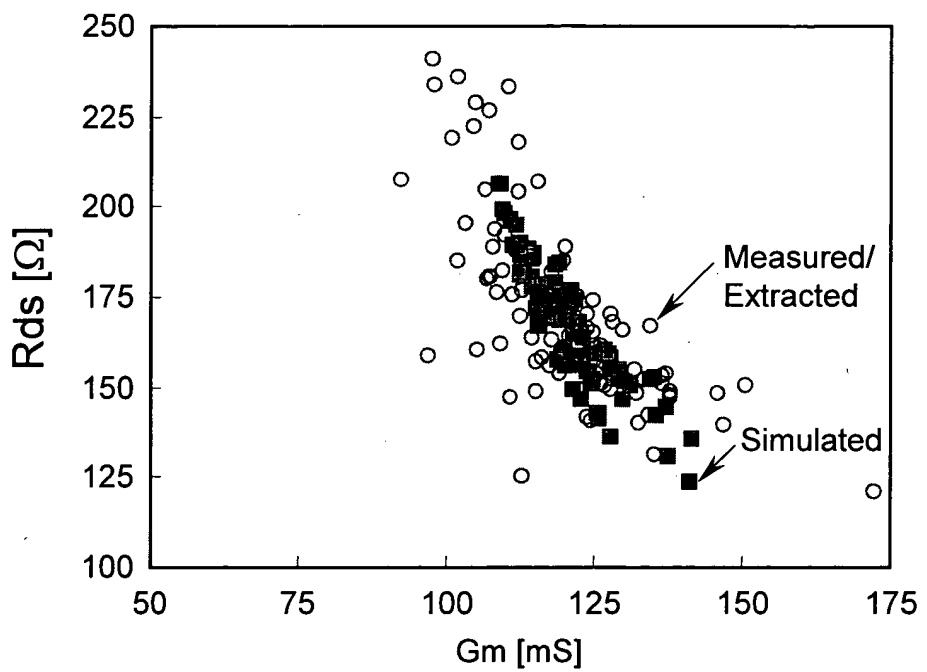


Figure 25

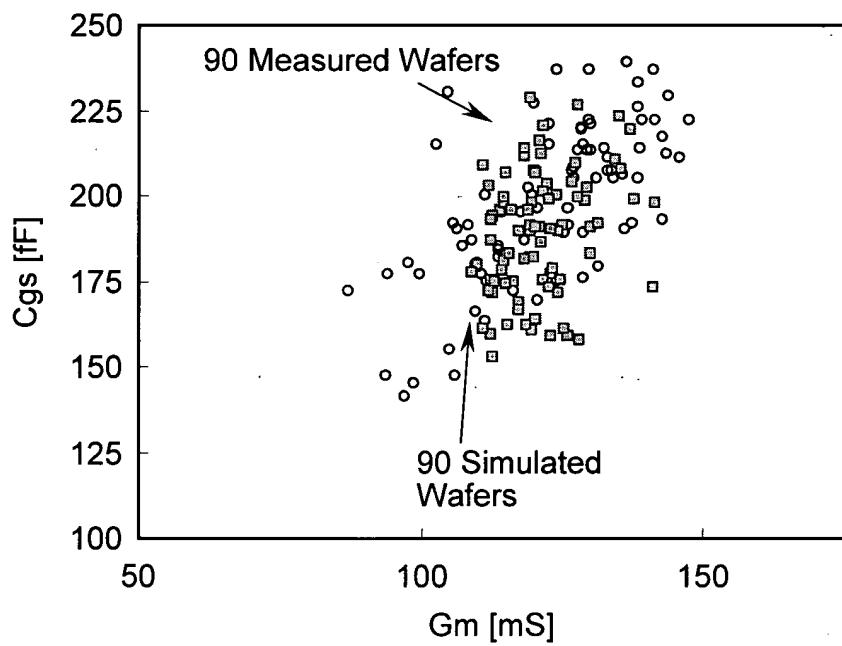


Figure 26

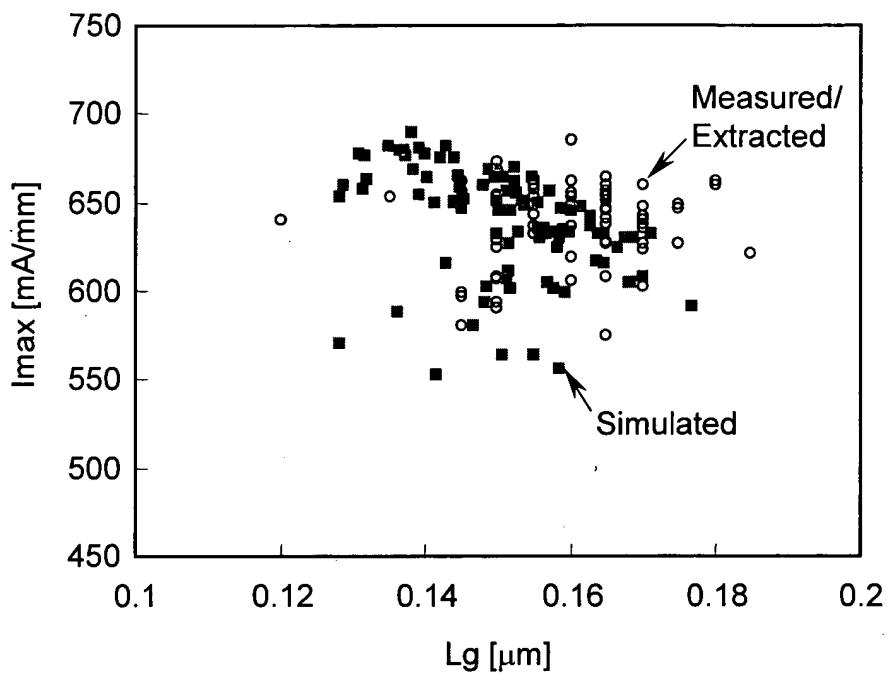


Figure 27

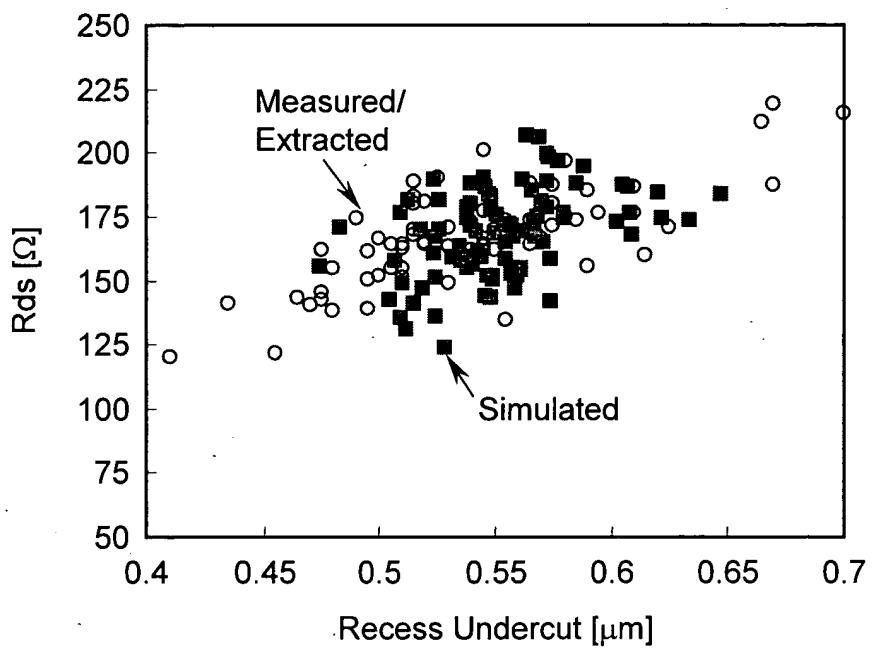


Figure 28